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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/053,179

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Kenneth L. Stanwood

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EXAMINER

SEFCHECK, GREGORY B

ART UNIT

PAPER NUMBER

2419

NOTIFICATION DATE

DELIVERY MODE

09/24/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/053,179	Applicant(s) STANWOOD ET AL.	
	Examiner GREGORY B. SEFCHECK	Art Unit 2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 51-75 and 82-96 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 51-75 and 82-96 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's Amendment filed 6/3/2009 is acknowledged.
- Claims 51, 53, 63-65, 83, 84, and 89 have been amended.
- Claims 1-50 and 76-81 have been previously cancelled.
- Claims 90-96 have been added.
- Claims 51-75 and 82-96 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 83 and 85-88 are rejected under 35 U.S.C. 102(e) as being anticipated by Kordsmeyer et al. (US006963751B1), hereafter Kordsmeyer, in view of .

- Regarding claim 83,

Kordsmeyer discloses a method in a wireless communication system in which service data units (SDU) are packed and fragmented into protocol data units (PDU) having a header and data field (payload), the SDUs and PDUs associated with a specific user connection (ELT of each PDU; Col. 1, lines 20-65; Abstract; Background;

Art Unit: 2419

Fig. 1-2; claim 83 – method of formatting protocol data units (PDUs) from incoming service data units (SDUs) for transmission of data carried by the FDUs over a communication channel shared by one or more user connections).

Kordsmeyer discloses PDUs include an ELT (header) and DAF (payload) based upon the varied services provided over the bandwidth of wireless connections between data sources and data sinks according to a particular protocol (Fig. 2; Col. 1, lines 20-65; claim 83 - provisioning a protocol data unit (PDU), including a header and a payload area, wherein the length of the PDU is established in conjunction with the bandwidth allocated currently to the user connection).

Kordsmeyer discloses SDU4 and a fragment FR3 of SDU5 is stored in the payload of PDU5, along with INFs (subheaders) specifying the length of the SDUs in the DAF of the PDU in order to fully utilize the DAF of each PDU, with corresponding INFs to indicate the fragmentation state of the DAF - the first/continuing/end fragment and length of each SDU (Fig. 2; Col. 8-9, lines 47-23; claim 83 - packing and fragmenting the SDUs associated with the user connection into the payload area of the PDU based on the length of the payload area).

- Regarding claims 85-88,

Kordsmeyer discloses a method and wireless communication system meeting all limitations of the parent claims.

Art Unit: 2419

Kordsmeyer discloses how subsequent SDUs are packed and fragmented into PDUs in order to fully utilize the DAF of each PDU, with corresponding INFs to indicate the fragmentation state of the DAF - the first/continuing/end fragment and length of each SDU (Fig. 2; Col. 8-9, lines 60-2; claim 85 - mapping one or more SDUs into the payload area of the PDU until a remaining area in the payload area of the PDU cannot accommodate a next SDU; claim 85 - fragmenting the next SDU into a first and a second fragment, the first fragment having the length of the remaining area; claim 85 - mapping the first fragment to the remaining area; claim 85 - inserting fragmentation header information to indicate the fragmentation state of the payload and to identify the first fragment as being a first fragment; claim 86 - any SDU fragment includes a fragmentation control field identifying the SDU fragment; claim 87 - mapping the second fragment to a next PDU if the length of the second fragment fits into the length of the payload area of the next PDU; claim 87 - inserting fragmentation control information to indicate the fragmentation state of the payload and to identify the last fragment as being a last fragment; claim 88 - further fragmenting the second fragment if the length of the second fragment is larger than the length of the payload area of a next PDU to obtain a third fragment having the length of the payload area of the next PDU; claim 88 - mapping the third fragment to the next PDU; claim 88 - inserting fragmentation control information, to indicate the fragmentation state of the payload and to identify the third fragment).

Art Unit: 2419

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 51-55, 63-67, 75, 82, 84, 89, and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kordsmeyer in view of Pfeffer (US006128293A).

- Regarding claims 51, 63, 75, 84, and 89,

Kordsmeyer discloses a method and wireless communication system in which service data units (SDU) are packed and fragmented into protocol data units (PDU) having an ELT (header) and DAF (payload; Abstract; Background; Fig. 1-2; claim 51,63,89 – node/base station/method in a communications system, that packs and fragments service data units over a communications link as a protocol data unit having a payload area and a header area; claim 51,63,89 – pack and fragment service data units into payload of protocol data units; claim 51,63,89 – means for mapping a first service data unit to the payload area of a protocol data unit).

Kordsmeyer discloses SDU4 and a fragment FR3 of SDU5 is stored in the payload of PDU5, along with INFs (subheaders) specifying the length of the SDUs in the DAF of the PDU in order to fully utilize the DAF of each PDU, with corresponding INFs to indicate the fragmentation state of the DAF - the first/continuing/end fragment and

Art Unit: 2419

length of each SDU (Fig. 2; Col. 8-9, lines 47-23; claim 51,63,89 - wherein the payload area of the protocol data unit comprises a corresponding packing subheader specifying the length of each packed service data unit; claim 51,63,89 - wherein the header area of the protocol data unit comprises a length field; claim 51,63,89 - means for determining whether a second service data unit is larger than the remaining payload area of the protocol data unit; claim 51,63,89 - if the second service data unit is not larger than the remaining payload area of the protocol data unit, then means for mapping the second service data unit to the remaining payload area of the protocol data unit; claim 51,63,89 - if the second service data unit is larger than the remaining payload area of the protocol data unit, then means for fragmenting the second service data unit into at least two fragments and means for mapping the first fragment to the payload area of the protocol data unit; claim 89 - subheader fragmentation control field indicating whether the corresponding service data unit is a first fragment, a continuing fragment, a last fragment or an unfragmented service data unit).

Kordsmeyer discloses SDUs and PDUs are associated with a specific user connection/session (corresponding ELT of each PDU; Col. 1, lines 20-65; claim 51,63,89 - PDU and SDU associated with a specific user connection; claim 75 - header area of protocol data unit comprises a connection identifier field).

Kordsmeyer discloses fixed length PDUs. Thus, Kordsmeyer does not explicitly disclose establishing the length of a variable length PDU in conjunction with the bandwidth allocated to the connection.

Van Grinsven discloses a transmission system with a flexible frame structure (Title) in which packing and fragmenting of SDUs into fixed-length as well as variable length PDUs is done based upon the bandwidth allocated to the specified connection (Fig. 4; paragraphs 41, 42, 55; claim 51,63,84,89 – length of PDU is established in conjunction with the bandwidth allocated to the specified connection.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kordsmeyer by packing and fragmentation of SDUs into variable-length PDUs based upon the bandwidth utilized for each specific connection, as shown by Van Grinsven, thereby enabling adaptation and optimization of connection bandwidth of different protocols having different PDU requirements.

- Regarding claims 52 and 64,

Kordsmeyer discloses a method and wireless communication system meeting all limitations of the parent claims.

Kordsmeyer discloses transmission of the PDUs as messages (frames) over a wireless connection (Col. 1, lines 20-60; claim 52,64 - transmitter to map the protocol data units into frames and transmit the frames).

- Regarding claims 53 and 65,

Kordsmeyer discloses a method and wireless communication system meeting all limitations of the parent claims.

Kordsmeyer discloses SDUs of various service data - voice and/or packet data (Col. 1, lines 60-65; claim 53,65 – service data units have more than one format).

- Regarding claims 54, 55, 66, 67, 82, and 90,

Kordsmeyer discloses a method and wireless communication system meeting all limitations of the parent claims.

Kordsmeyer discloses INFs (subheaders) specifying the length of each SDU or fragment thereof in the DAF of each PDU in order to fully utilize the DAF of each PDU, with corresponding INFs to indicate the fragmentation state of the DAF as the first/continuing/end fragment and length of each SDU (Fig. 2; Col. 8-9, lines 47-23; claim 54,66 - packing subheader further comprises a fragmentation control field specifying whether the protocol data unit includes a service data unit fragment; claim 82 - first SDU is a last fragment of a SDU).

Kordsmeyer shows the INFs may include information items IN1-IN3, whereas IN1-IN3 indicates whether the DAF of the PDU includes at least a fragment of more than one SDU (claim 55,67 - fragmentation control field comprises at least two bits).

Kordsmeyer shows that the INF does not necessarily include each of IN1-IN3, making the INF variable in length (Col. 3, lines 10-46; claim 90 – length of packing subheaders is variable).

Art Unit: 2419

5. Claims 56 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kordsmeyer in view of Van Grinsven as applied to claims 51 and 63 above, and further in view of Sengodan et al. (US006918034B1), hereafter Sengodan.

- Regarding claims 56 and 68,

Kordsmeyer discloses a method and wireless communication system meeting all limitations of the parent claims.

Kordsmeyer discloses transmission of SDU fragments in sequential PDUs, but does not explicitly disclose a fragment sequence number in the packing subheader.

Sengodan discloses transferring mobile telephony service data using IP protocol packets (Fig. 1, 3; Col. 1, lines 15-17, 40-52; Col. 3, lines 22-43). Sengodan discloses mapping mini-packets MPs into the payload of a single RTP/UDP/IP packet, where each MP has a corresponding mini-header that includes a length indicator LI of the MP and 2 bit sequence number for marking the order of mini-packets within the IP packet(s) from a single user (claim 56,68 - packing subheader further comprises a fragment sequence number).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a fragment sequence number in the packing subheader of Kordsmeyer, as shown by Sengodan, thereby ensuring proper reception and decoding of the service data in a system in which sequential transmission and reception of service data is not guaranteed.

Art Unit: 2419

6. Claims 57-62 and 69-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kordsmeyer in view of Van Grinsven as applied to claims 51 and 63 above, and further in view of Caronni et al. (US006970941B1), hereafter Caronni.

- Regarding claims 57-62 and 68-74,

Kordsmeyer discloses a method and wireless communication system meeting all limitations of the parent claims.

Kordsmeyer discloses the use of encryption, but does not explicitly disclose an encryption control/key field in the header of the PDU comprising at least two bits.

Kordsmeyer also shows how IN1-IN3 indicates whether the DAF of the PDU includes at least a fragment of more than one SDU, but does not explicitly disclose a subheader present field in the PDU header.

Referring to Fig. 6, Caronni discloses a system and method in an IP network in which a supernet header 620 includes a field 624 for storing encryption key (control information). Caronni discloses a key for each channel (Col. 5, lines 36-38; Col. 6, lines 1-4), thereby necessitating at least two bits to represent the key in a system with more than two channels shown in Kordsmeyer and Van Grinsven (claim 59,61,71,73 - header area of the protocol data unit comprises an encryption control/key field; claim 60,62,72,74 - encryption control/key field comprises at least one/two bits).

Additionally, Caronni discloses next header fields that indicate the presence of additional headers prepended to the packet payload (claim 57,69 - wherein the header

Art Unit: 2419

area of the protocol data unit comprises a packing subheader present field; claim 58,70
- wherein the packing subheader present field comprises at least one bit).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kordsmeyer and Van Grinsven by implementing encryption control/key fields and subheader present fields, as shown by Caronni. This would provide security and further bandwidth optimization in implementing selective fragmentation and packing of SDUs into PDUs shown by Kordsmeyer.

7. Claims 91-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kordsmeyer in view of Van Grinsven as applied to claim 51 above, and further in view of Hathaway et al. (US20020126677A1), hereafter Hathaway.

- Regarding claims 91-94,

Kordsmeyer discloses processing of service data of voice and data, but does not explicitly disclose classifying them based on a connection identifier using specific control protocols, a convergence layer for establishment maintenance and transfer of the service or data queuing based on the connection identifier and individual characteristics.

Hathaway discloses a packet processing system that receives, classifies and separately queues different types of data using specific control protocols based upon connection identifier (Fig. 2-3B, 5; paragraphs 12-13; claim 91 - classification module for classifying the SDUs based on at least a connection identifier, for enabling packing and

Art Unit: 2419

fragmenting of the SDUs on the connection in a PDU allocated to that connection; claim 92 - classification module uses control protocols specific to each particular type of SDU being classified; claim 94 - data queuing module wherein the SDUs are sorted based on the connection identifier and individual characteristics).

Hathaway further discloses convergence between CPS packets, AAL2 cells and PDUs as well as channel identifier mapping performing connection establishment, maintenance and data transfer (Fig. 6; claim 93 - convergence sublayer module that processes the SDUs classified by the classification module for service specific connection establishment, maintenance, and data transfer operations).

It would have been obvious to one of ordinary skill in the art at the time of the invention by modifying Kordsmeyer by enabling classifying and separately queuing different types of data using specific control protocols based upon connection identifier and convergence of the different data types for channel mapping purposes, as shown by Hathaway, thereby permitting adaptive processing of various protocol types by the same system.

8. Claims 95 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kordsmeyer in view of Van Grinsven and Hathaway as applied to claim 91 above, and further in view of Payne, III (US20060062250A1), hereafter Payne.

- Regarding claims 95 and 96,

Kordsmeyer does not explicitly disclose a bandwidth allocation map with the bandwidth allocated to each node sharing the communication channel or establishing the bandwidth allocated to each connection from the bandwidth currently allocated to a respective node based on the priority and type of the connections served by the node.

Payne discloses support for multiple frame types in which a bandwidth allocation map is defined for each subscriber unit over a shared medium, including linked priority queuing (Title; Fig. 13; paragraph 94; claim 95 - communication control module which prepares a bandwidth allocation map with the bandwidth allocated to each node sharing the communication channel; claim 96 - communications processor establishes the bandwidth allocated to each connection from the bandwidth currently allocated to a respective node based on the priority and type of the connections served by the node).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kordsmeyer by defining bandwidth allocations to subscriber units in consideration of the priority and type of data for a connection, as shown by Payne. This would permit the handling of different protocol data having different priorities, such as the voice and data disclosed by Kordsmeyer.

Response to Arguments

9. Applicant's arguments filed 6/3/2009 regarding claim 83 have been fully considered but they are not persuasive.

Art Unit: 2419

- In the Remarks on pg. 15 of the Amendment, Applicant contends that Kordsmeyer discloses PDUs of fixed length, which are predefined by the radio interface protocol and, thus, cannot anticipate claim 83.
- The Examiner respectfully disagrees. Claim 83 only explicitly requires that the PDU length be established in conjunction with the bandwidth allocated currently to the specified connection. This language does not preclude predefined PDU length based upon the bandwidth of a connection operating under a particular protocol. Therefore, the claim rejection is proper.

10. Applicant's arguments with respect to claims 51-75, 82, and 89 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record on the attached PTO-892 and not relied upon is considered pertinent to applicant's disclosure.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2419

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY B. SEFCHECK whose telephone number is (571)272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag Shah can be reached on 571-272-3144. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/053,179

Page 16

Art Unit: 2419

/Gregory B Sefcheck/

Primary Examiner, Art Unit 2419

9-18-2009